

UNIVERSITY OF ILLINOIS
DIGITAL COMPUTER

LIBRARY ROUTINE SA 2 - 127

TITLE Exponential Auxiliary for Floating Decimal (DOI or SADOI)
TYPE Closed Auxiliary for Floating Decimal
NUMBER OF WORDS 26
TEMPORARY STORAGE 0, 1
PARAMETERS S3, location of Floating Decimal Accumulator
S4, location of Floating Decimal Routine
S5, location of Code A3 --
DURATION 13 milliseconds
DESCRIPTION This code takes the number a from the Floating accumulator
and replaces it with e^a . Entry is made with an 8J order and
control is returned to 19S4.
The accuracy is limited only by the accuracy of the argument.
NOTE The coefficients in this routine were obtained by use of
Code KAl.

RT: 10/8/59

DATE	12/29/53	Rt:	6/5/58
PROGRAMMED BY	D. E. Muller		
APPROVED BY	J. P. Nash		

LOCATION	ORDER	NOTES	PAGE 1
0	COK(SA2) 50 S3 7J 14L	2X log ₁₀ e	
1	40 S3 F5 1L	standard form	
2	22 S5 F4 130S4	exponent	
3	40 1S3 01 2F	select tabular entry	
4	L4 13L 42 11L		
5	S5 F 40 1F	Prepare to expand	
6	F5 L 42 8L		
7	23 8L 50 F		
8	7J 1F L4 (14)L		
9	40 F F5 8L	Form expansion	
10	42 8L L0 13L		
11	32 7L 50 ()F		
12	7J F 22 18S4	times tabular entry	
13	LJ 1F L4 22L		
14	40 F 00 368588963807J	2 log ₁₀ e = .613588 - -	
15	00 F 00 6759061J		
16	00 F 00 50207694J		

LOCATION	ORDER	NOTES PAGE 2	
17	00 F 00 459245947J		
18	00 F 00 3178572585J		
19	00 F 00 16568534749J		
20	00 F 00 57564620831J		
21	00 F 00 100000000067J		
22	00 F 00 500000000000J		
23	00 F 00 88913970502J		.05 x 10 ^{1/4}
24	00 F 00 158113883008J		.05 x 10 ^{1/2}
25	00 F 00 281170662595J		.05 x 10 ^{3/4}